

ABSTRACT OF THE DISCLOSURE

A transverse flow adjustable pressure regulator controls the flow of a gas from a high pressure source to a low pressure device. The regulator includes a body having an inlet port and a pressure chamber. A bonnet engages the body to define a piston chamber and a transverse outlet port. An end cap is positioned at an end of the bonnet. A regulating assembly is disposed in the pressure chamber that includes a seat and a seat support, a thrust element, a retaining element and a seal disposed in part between the thrust element and the retaining element. A piston assembly has a power tube terminating at a regulating end. The piston has a piston portion having a pressure face and a piston stem. The regulating end defines a passage contiguous with a cross-bore in the piston stem. The piston moves in the piston chamber with the power tube traversing through the retaining element and with the seal, between a closed state in which the regulating end is seated on the sealing element and an open state in which the regulating end is unseated. A biasing element is operably connected to the piston assembly, exerting a force on the piston to urge the piston to the open state. Gas pressure exerts a force on the piston pressure face to urge the piston closed. The force exerted by the biasing element on the piston is adjustable to vary the force of the gas pressure required to move the piston assembly from open to closed.